

REMARKS

This application has been amended in a manner that is believed to place it in condition for allowance at the time of the next Official Action.

Claims 17-34 are pending in the present application. Support for claims 17-34 may be found generally throughout the specification and in the original claims.

Claims 1-16 were rejected under 35 USC §112, second paragraph, for allegedly being indefinite. Applicants believe the present amendment obviates this rejection.

As noted above, claims 1-16 have been canceled. Applicants believe that claims 17-34 have been drafted so as to avoid the informalities raised by the Official Action.

Claims 10-12 were rejected for reciting the "use" of a vibrated elevating reactor. However, new claims 17-34 have been drafted as method claims. As a result, applicants respectfully request that the rejection be withdrawn.

Claim 1 was rejected for reciting the phrase "comprises essentially the steps consisting in". However, as noted above, claim 1 has been canceled. Claims 17-34 have been drafted so that this terminology is not recited.

Claims 1-9 and 14-16 were rejected under 35 USC §103(a) as allegedly being unpatentable over UNDERWOOD et al. in view of WISTREICH et al.

In the present invention, the tubular element is heated by itself when the current passes through it, i.e., the tubular element is a heating means (resistor). This tubular element is a closed surface in which the matter to be pyrolyzed is surrounded by heating surfaces. In this configuration, the produced smoke is released from the ends of the tube. This is believed to reduce unnecessary loss of heat and energy. Thus, this stands in contrast to the open metal plate 16 taught by WISTREICH et al.

The surface of heat exchange is also not taught by the publication. In the case of the heated tubular element of the present invention, it is normally fully loaded with matter to be pyrolyzed as opposed to the surface between the heated plate 16 in WISTREICH et al. Additionally, the surface of the matter resting on it are moved by the vibration of the plate 16.

Furthermore, the publication does not disclose that the matter to be pyrolyzed is heated thanks to a (electrically) heated ascendant tubular element which helps enable control of the temperature.

Thus, the device of WISTREICH et al. is not an ascendant element with a lower/upper portion since it is horizontal. In the device of the present invention, the matter to be pyrolyzed is introduced at the bottom of the tubular spiral and moves, thanks to the vibrations, towards the upper end while being electrically heated by the spiral itself to generate the

wanted smoke which follows the movement of the pyrolyzed particles.

The Joule effect heating is believed to present the advantage of an instant adjustment of the energy given to the biomass to be pyrolyzed. This reactive way of heating allows controlling perfectly the pyrolysis temperature and heating rate. The temperature of the biomass can be easily set to a given temperature. Indeed, the publication does not disclose or suggest the recited temperature. This process of "slow" pyrolysis of the present invention is essentially different from the process of "fast" or "flash" pyrolysis (see introductory part of the pending application).

In an effort to remedy the deficiencies of WISTREICH et al. for reference purposes, the Official Action cites to UNDERWOOD et al.

UNDERWOOD et al. relates to a "fast" pyrolysis process in which the matter to be pyrolyzed is heated at a very high temperature (400°C - 650°C) very quickly (a few seconds) and then cooled very quickly (see abstract of UNDERWOOD et al.).

As the formation of HAP, especially benzoanthracene, is depending on the temperature, it is clear that the smoke obtained with a usual "flash-pyrolysis" process involving temperatures above 400°C and up to 650°C will contain much more of these harmful substances.

In a "fast" pyrolysis process, the heating is done principally by convection. In the present application process, the heating is done by conduction (hot tubular element in direct contact with the biomass) and convection (vibrating of the tubular element).

Thus, the teachings of the cited UNDERWOOD et al. patent do not remedy the deficiencies of WISTREICH et al.

Thus, in view of the above, applicants respectfully submit that the proposed combination of UNDERWOOD et al. in view of WISTREICH et al. fails to render obvious the claimed invention.

Claims 1-16 were provisionally rejected on the ground of non-statutory obviousness-type double patenting as allegedly being unpatentable over claims 1-15 of copending Application No. 10/765,123. Applicants respectfully request that the rejection be withdrawn.

As noted in the Official Action, the rejection is a "provisional" nonstatutory obviousness-type double patenting rejection. As set forth in MPEP §804, if a "provisional" nonstatutory obviousness-type double patenting rejection is the only rejection remaining in the earlier of the two pending applications, while the later-filed application is rejected on other grounds, the Examiner should withdraw that rejection and permit the earlier-filed application to issue as a patent without a terminal disclaimer. Thus, as applicants believe that all of

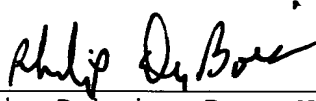
the remaining issues set forth in the Official Action have been overcome by the present amendment, applicants respectfully request that the present application be allowed without a terminal disclaimer.

In view of the present amendment and the foregoing remarks, therefore, applicants believe that the present application is in condition for allowance at the time of the next Official Action. Allowance and passage to issue on that basis is respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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